Name KEY

Date _____ Block ____

PRACTICE Quiz – Intro to Probability

41 pts

Find the probability of each of the following events:

*Assume you're using a standard dice.

1) Rolling a 2 or a 5 — 1

$\frac{2}{6} = \boxed{\frac{1}{3}}$

2) Rolling a 6 — 1

$\frac{1}{6}$

*For 3-5, assume you are using a standard deck of cards with no jokers

3) Picking a diamond — 1

$13/52 = \boxed{1/4}$

4) Picking a Queen — 1

$4/52 = \boxed{1/13}$

5) Picking a card that is an Ace and red — 1

$2/52 = \boxed{1/26}$

6) Picking a card that is an Ace or red — 1

$28/52 = \boxed{7/13}$

2 7) You have 12 red marbles, 4 green marbles, and 10 yellow marbles. What is the probability of picking

A. A green marble? $4/26 = \boxed{2/13}$

B. A yellow or red marble?

$22/26 = \boxed{11/13}$ (or 1 − green)

2 8) You flip a coin and then roll an eight-sided dice.

A. List the sample space

H1	T1
H2	T2
H3	T3
H4	T4
H5	T5
H6	T6
H7	T7
H8	T8

B. Find the probability of flipping tails then rolling an odd number.

$4/16 = \boxed{1/4}$

(or $\frac{1}{2} \cdot \frac{4}{8} = \frac{4}{16}$)

10

Name_____

Date_____ Block_____

2 9) You are in charge of quality control for a company. You test 500 mp3 players and find that 497 of them are not defective.

A. What is the experimental probability that the player will not be defective?

$497/500$

B. If you ship 1500 mp3 players to Michigan, how many should *have* defects, based on probability?

$\frac{3}{500} = \frac{x}{1500}$ $x = 9$

For #10-~~13~~ 14:

A. State whether the question requires the Fundamental Counting Principle (FCP), Combinations, or Permutations.

B. Find how many different options are possible. Show set-up.

2 10) I have 7 condiments in my fridge and I want to use two of them on my sandwich. How many different ways can I choose 2 condiments?

A. Comb B. ${}_7C_2 = 21$

2 11) I can't decide what to wear to an interview. I have a choice of 3 pairs of pants, 5 shirts, and 2 jackets. How many different three-piece outfits can I make for the interview?

A. FCP B. $3 \cdot 5 \cdot 2 = 30$

2 12) Sixteen people are competing for gold, silver, and bronze in the Olympics. How many different ways can the medals be won?

A. Perm B. ${}_{16}P_3 = 3360$

2 13) I want to arrange 7 different posters on the wall. How many different ways can this be done?

A. Perm B. ${}_7P_7 = 5040$

2 14) Mrs. Anttila is trying to decide what books to choose for class. She has a choice of 7 classics, 3 historical fiction and 2 nonfiction. How many ways can she choose a set of six books for class that consists of 3 classics, 2 historical fiction, and 1 nonfiction book?

A. Comb. B. ${}_7C_3 \cdot {}_3C_2 \cdot {}_2C_1$

$35 \cdot 3 \cdot 2 = 210$

For #15-19, use the table below to answer the questions.

Students at HFA were asked about their favorite place in the Museum. The following table lists their responses.

Favorite Spot	Number of Students
IMAX	12
Weiner Cafe	5
Dymaxion House	4
Steam Engine	7

14) How many students were questioned?

28

15) What is the probability that a student's favorite location is the IMAX?

$12/28 = \boxed{3/7}$

16) What is the probability that a student's favorite location is NOT the Steam Engine?

$28 - 7 = 21/28 = \boxed{3/4}$

17) If you questioned all 450 HFA students, how many of those students would name a favorite spot as the Weiner Café (based on probability)?

$\frac{5}{28} = \frac{x}{450}$ $x =$ 80 students

18) If you questioned all 450 HFA students, how many would list the Dymaxion House OR the Steam Engine as his/her favorite location?

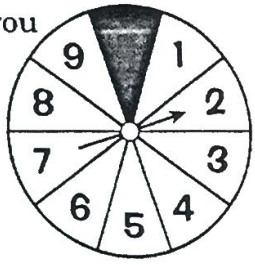
$\frac{11}{28} = \frac{4+7}{28} = \frac{x}{450}$ $x =$ 177 students

Which Italian Insects Often Fall in Love?

Find each correct answer in the set of answers under the exercise and cross out the letter above it.

1. Each time you spin this spinner, how many equally likely outcomes are there? E 10

2. Find each probability if you spin the spinner once.



a. P(even number) R 4/10 = 2/5

b. P(odd number) I 5/10 = 1/2

c. P(black) D 1/10

3. If you spin the spinner 100 times, about how many times would you expect it to stop on:

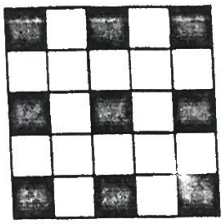
a. an even number T $\frac{2}{5} = \frac{x}{100}$ x=40

b. an odd number L $\frac{5}{10} = \frac{x}{100}$ x=50

4. If you roll a regular 6-faced die 1200 times, about how many times would you expect to get a 4? K $\frac{1}{6} = \frac{x}{1200}$ x=200

5. If a raindrop falls on this set of tiles, how many equally likely outcomes are there? S 25

6. Find each probability if a raindrop falls on the tiles.



a. P(falling on black) O 9/25

b. P(falling on white) A 16/25

c. P(falling on green) E 0

7. If 100 raindrops fall on the tiles, about how many of them would you expect to fall on:

a. a black tile S $\frac{9}{25} = \frac{x}{100}$ x=36

b. a white tile T $\frac{16}{25} = \frac{x}{100}$ x=64

8. Jack rolled a regular 6-faced die three times and got 2 each time. What is the probability he will get 2 on the next roll? N 1/6

7 pts

K	I	T	R	A	L	O	N	E	O	M	D	E	S	R	A	S	N	T
200	1/2	64	1/3	16/25	50	7/10	1/6	10	9/25	60	1/10	0	25	2/5	24	36	3/8	40

ROMAN

9. Suppose a bag contains 12 green cubes, 5 blue cubes, and 3 yellow cubes. Find each probability if you choose one cube at random:

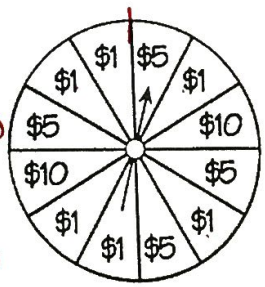
a. P(green) $\frac{12}{20} = \frac{3}{5}$ V

b. P(blue) $\frac{5}{20} = \frac{1}{4}$ E

c. P(yellow) $\frac{3}{20}$ B

d. P(not blue) $\frac{15}{20} = \frac{3}{4}$ H

10. If you spin this spinner 600 times, about how many times would you expect it to stop on:



N a. $1 $\frac{6}{12} = \frac{x}{600}$ x=300

G b. $5 $\frac{4}{12} = \frac{x}{600}$ x=200

T c. $10 $\frac{2}{12} = \frac{x}{600}$ x=100

11. Jill tossed a coin 10 times and got heads every time. What is the probability she will gets heads on the next toss? U 1/2

12. A traffic signal is green for 20 seconds, then amber for 5 seconds, then red for 30 seconds. When you reach the signal, what is the probability it is:

a. green $\frac{20}{55} = \frac{4}{11}$ I

b. amber $\frac{5}{55} = \frac{1}{11}$ E

1/2 pt for each answer

13. Suppose you do a survey to find the blood types of 200 people and obtain the results in the table. Based on this data, find the probability that a randomly chosen person has:

Blood Type	Number of People
O^+	76
O^-	14
A^+	68
A^-	12
B^+	18
B^-	4
AB^+	6
AB^-	2

S a. Type O^+ 76/200 = 19/50

S b. Type A^- 12/200 = 3/50

O c. Type B^- 4/200 = 1/50

P d. Type AB^+ or AB^- $\frac{8}{200} = \frac{2}{50} = \frac{1}{25}$

7

B	S	T	O	H	U	G	I	V	P	C	E	N	T	E	K	I	S	S
3/20	19/50	7/20	1/50	3/4	1/2	200	3/11	3/5	1/25	120	1/11	300	100	1/4	3/10	4/11	3/50	1/3

TICKS

ROMANTICKS